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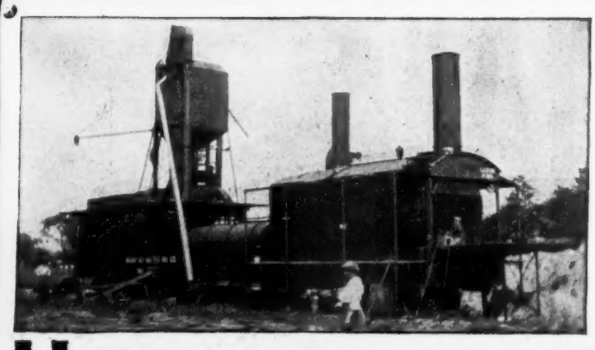

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Contributed Articles and Reports.

Contributions suitable for this paper, either in the form of special articles or as letters discussing municipal matters, are invited and paid for.

City officials and civic organizations are particularly requested to send to Municipal Journal and Public Works regularly their annual and special reports.

Information Bureau.

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PAVEMENT GUARANTEES.

About one-third the municipal paving engineers who expressed an opinion on the subject of pavement guarantees in response to our questionnaire were in favor of such guarantees for all pavements, as detailed in our issue of March 15th. In this issue we summarize the opinions of county highway engineers on the subject, and of these also a little less than one-third are in favor of guarantees for all pavements; or about one-fourth of those who give their opinions as based on experience.

Many, probably the majority, of those who favor guarantees explain that they do so only because it seems to be the best way to insure the observance of specifications. It would seem to be in order for paving engineers to develop a direct method of securing such observance, either by adequate inspection or some other method.

MECHANICAL AGITATION FOR ACTIVATED SLUDGE.

A large part of the expense and of the difficulty attached to the activated sludge process of treating sewage is occasioned by the providing of large quantities of air supplied under pressure and diffused throughout the sewage. The function of this air has been considered to be two-fold—to supply oxygen to the sewage, and to maintain the activated sludge continuously intermingled with it. The latter is merely a mixing or agitating process and could be effected, it would seem, by other means, such as paddles or rapid flow through a baffled channel.

Experiments based on the idea of using other means of agitation have been made in England and are described briefly in this issue. These apparently demonstrated that not even for oxidation was applied air necessary, but that sufficient oxygen is absorbed at the surface if the sewage be kept in agitation. This promises to be a very important discovery in activated sludge treatment.

MOSQUITO EXTERMINATION AS AN INVESTMENT.

Every reader of newspaper jokes knows that the New Jersey suburbs of New York are famous for their mosquitoes. As a matter of fact, there are many other sections of the country where there are more mosquitoes to the cubic foot of air, but none where the number of human sufferers from them is so great. Or was so great, for New Jersey is fast losing its unenviable distinction.

A large proportion of northern New Jersey's pests breed in the marshes or so-called meadows along the Passaic and Hackensack rivers, which cover thousands of acres. The problem of preventing mosquito breeding

here was a most difficult and formidable one, but the state tackled it in 1905 and has been at it ever since, with help from Essex county, while the cities and towns in the vicinity gave more or less earnest assistance by cleaning up local breeding spots.

There are still mosquitoes in New Jersey, but it is no longer necessary to wear head nets when venturing out of doors in the evening. In fact, only for a day or two once in a while is there any noticeable visitation by the singing pests. Most significant of all, the very meadows themselves are habitable now, and many industries have sprung up there.

A considerable area of the mosquito-freed meadows are along Newark's water front. In 1905 this section paid $7,650 in taxes; in 1918 it paid $238,513. An annual income increment of $230,000 is 5 per cent on $4,600,000. If we assume that only half the increase is due to the waging of war on mosquitoes and also allow $10,000 a year for maintenance of the drainage works, we still have 5 per cent on $2,100,000. Just what the cost of the anti-mosquito work in this district has been we do not know, but feel quite certain that it has not been anything like two million dollars.

Even if this tax increase be neglected, a million and a half residents of communities near the meadows have benefitted; and there are very few of these who would not gladly pay one, two, five or more dollars apiece rather than suffer a reversion to previous conditions. Probably few if any of these mosquitoes were carriers of disease; but in other sections the anopholes are a serious problem of the health board. In general, the methods that eliminate one will eliminate the other as well; and any section suffering from these malaria-carriers should take steps to protect the inhabitants by destroying mosquito breeding places. In many cases they may find this financially remunerative, as did Newark. How one small local problem of this kind was solved is described in this issue.

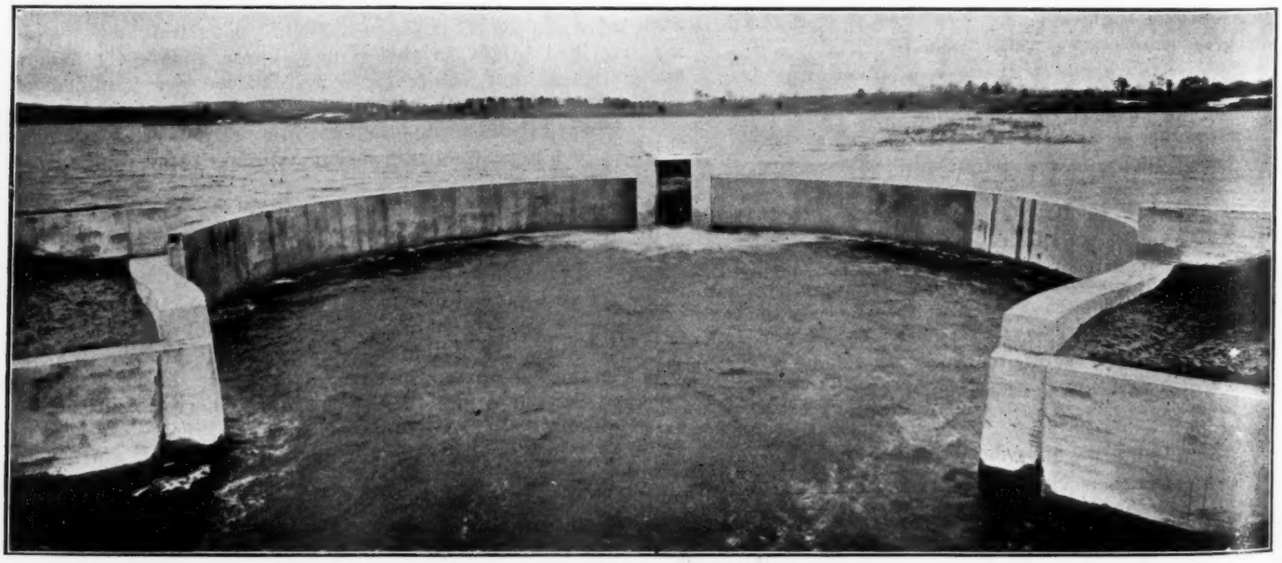
IMPROVING PROVIDENCE WATER SUPPLY

A Temporary Dam and a Regulating Dam with Spillway of Horse-Shoe Shape—Completion of New Reservoir Will Permit the Elimination of Pumping.

By JOHN ROSITER HESS, Jr.

The waterworks of the city of Providence, R. I., now supplies about 290,000 consumers and the number is increasing at the rate of about 7,000 a year. The increase in consumption of water caused by the growth in population has reached the point where there is considerable danger of the supply being inadequate in case of a long continued drought. Also the present source of supply is highly polluted and it is necessary to carefully filter all of the water to render it safe. It was consequently thought desirable to secure a more abundant supply from a less polluted source than the present drainage area, which is densely populated by mill villages containing over 30,000 inhabitants, with no systematic means of disposing of mill and household wastes. The present supply is obtained from the Pawtuxet river, being pumped at the Pettaconset pumping sation, the present cost of pumping being about $230 a day. The amount of water drawn from the river is much greater than the natural low-water flow of the stream and the supply is maintained by reservoirs owned and operated by the mills and which furnish them with continuous power, the water being let down by them from these reservoirs as they may need it for manufacturing purposes. The dry-weather flow may be less than the city consumption for several months at a time, and it was considered a serious menace to the community that it should be compelled to rely upon these storage reservoirs.

The city accordingly decided to construct a new reservoir. This will extend north five miles from Kent, where the main dam will be built, to North Scituate village, part of which will be flooded upon the filling of the reservoir. The water surface of the reservoir will have an area of more than five square miles. Before the completion of this large reservoir, however, the city will use a smaller so-called regulating reservoir located at North Scituate and fed by the overflow of Moswansicut Lake, Hunting House brook and other streams which form Moswansicut river, one of the important feeders of Pawtuxet river. This regulating reservoir lies between the Danielson pike and Hartford pike, and is now filled,



VIEW OF REGULATING DAM TAKEN FROM BRIDGE.

the water having reached the top of the concrete spillway about the first of April.

Because of war conditions and prices, the construction of the main dam at Kent has been postponed, but the completion of the upper regulating reservoir at the earliest possible date seemed a necessity. Surveys for condemning land for this reservoir were completed by the end of 1916 and the building of the dam, the raising of the highways, and clearing of the land were accomplished during the fall and winter of 1918. The reservoir formed by this North Scituate dam holds about 430,000,000 gallons and receives drainage from an area of about twenty-two square miles. This water can be sent down the Pawtuxet river to the present pumping station as it may be needed.

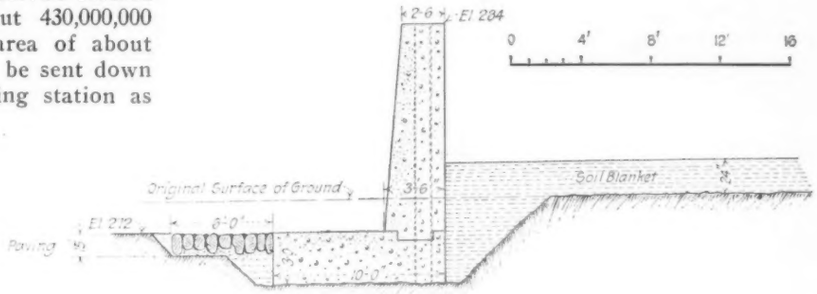
It is estimated that it will require four years from the letting of the contract to construct the main dam, and at least one year to fill the reservoir sufficiently to permit sending the water to the city. Plans and specifications for the construction of other earth roads in connection with the Scituate reservoir are in preparation, as are also those for the main dam and dike, and it is hoped to have contracts let for both of these this year.*

*Bids for part of this work were received April 23.

The main dam and dike will be built mainly of earth, of which about 2,500,000 cubic yards will need be handled.

The pumping station at Pettaconset is approximately ten feet above tide water. The water from the river is filtered and then pumped to the Sockanosset reservoir, which is 182 feet above sea level. A limited area is served by pumping again with high-service pumps. This pumping and filter plant will be discontinued when the reservoirs have been completed and filled, their elevation being fifty feet above the Sockanosset reservoir, so that water will flow by gravity to all parts of the city except the high-service district just referred to.

The new supply will be filtered at a point adjacent to the aqueduct and near the dam and will be stored in



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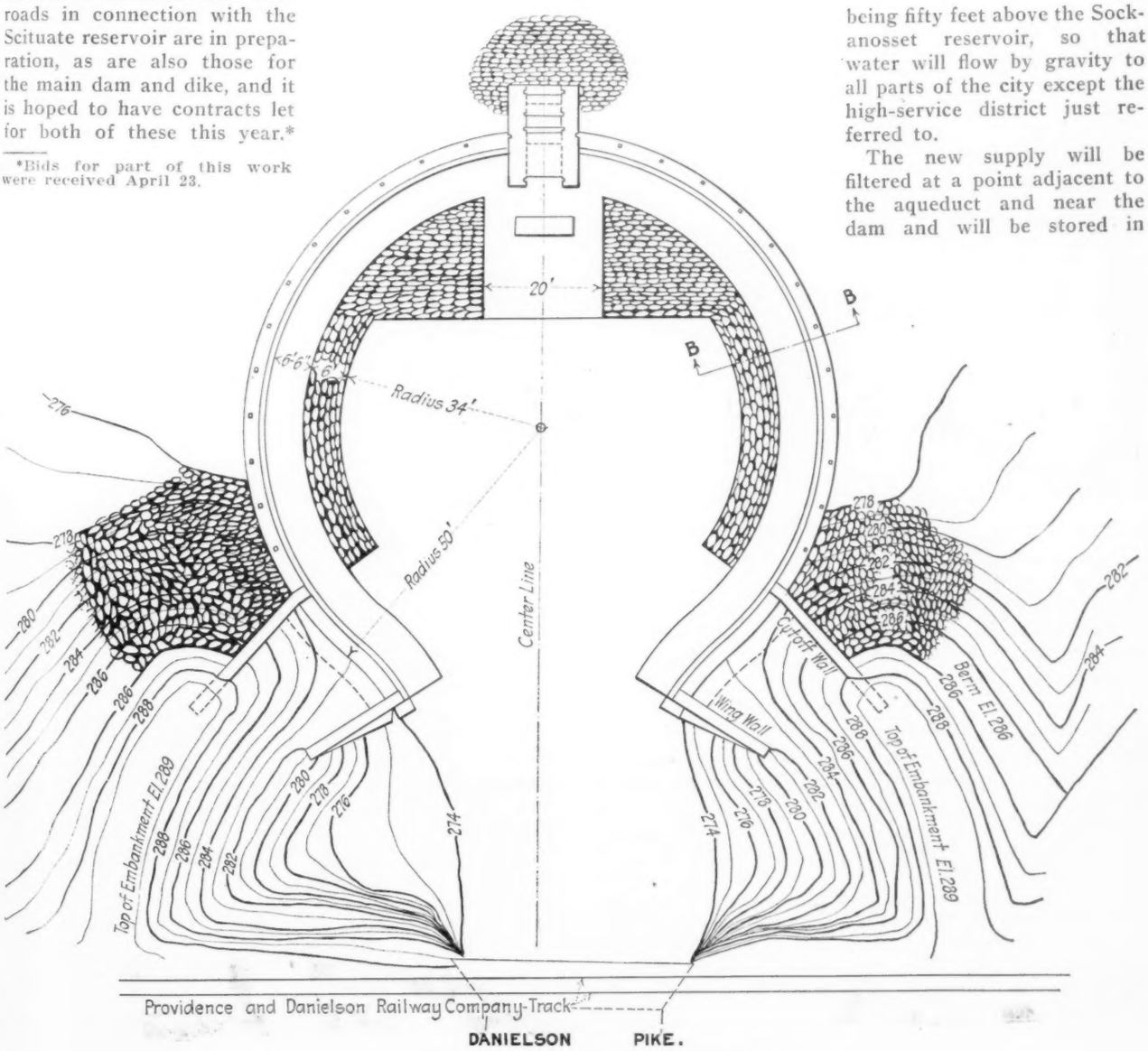


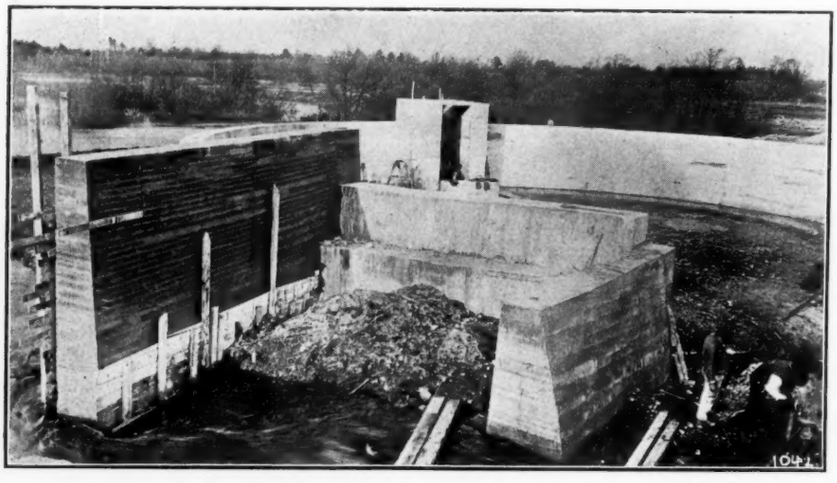
SCITUATE RESERVOIR REGULATING DAM.

covered reservoirs to prevent algae growth. It is estimated that the completion of the present project, which will cost about $15,000,000, will insure a supply of excellent water, sufficient for forty of fifty years of normal growth.

TEMPORARY TIMBER DAM.

In addition to the North Scituate dam, there has been constructed a temporary dam across the Pawtuxet river at the Pettaconset pumping station, which will be abandoned when the pumping station is abandoned, upon the completion of the Scituate reservoir. This temporary reservoir serves as an equalizer of stream flow past the present pumping station and will furnish a reserve supply from which to pump during periods of low-stream flow when the mills are shut down and the flow of the stream is being held back in their mill ponds. This and the North Scituate reservoir combined hold a reserve supply sufficient for thirty days.

This temporary dam will impound about 44,000,000 gallons. It is of six-inch planks, grooved and splined, with a plank apron on each side, rip-rapped on the lower side and filled in under the apron on the upper side with impervious soil. Adjustable flashboards about 10½ feet long are cut into the crosswalls, which act as bracing. The cross-walls are of six-inch grooved and splined planks and the tops are connected to form a walk across the entire length of the dam. The dam is 210 feet long, 100 feet of which is in the river and the remainder is extensions into the flat shores. Construction on this began in July, 1918, and was continued until cold weather, with the idea of renewing it this spring and completing it by August 1st. The contractors for the temporary dam are F. E. Shaw & Co.



ONE END OF SPILLWAY, SHOWING CUT-OFF WALL AND WING WALL.

THE NORTH SCITUATE DAM.

The reservoir at North Scituate covers the area lying above the Danielson pike, which is carried across the valley of the stream on an embankment, the stream flowing under a bridge in this embankment. The road embankment is used as a part of the dam for impounding the water. Instead of building a straight spillway at the bridge itself, however, which would not have given anything like the length of overflow necessary, one was built about fifty feet above the bridge and connected with the road embankment by short spur embankments sixty or seventy feet long. The overflow section or spillway, is of concrete and in plan takes the shape of an arc of a circle with a central angle of 280 degress, the water overflowing into the partially enclosed basin thus formed and passing through the open section of the circle, which is directly opposite the bridge. The upstream or wetted face of the spillway has a radius of fifty feet, and is vertical. The top is flat, two and a half feet wide, and the downstream face has a batter of twelve inches in its total height of twelve feet. The spillway rests upon a base of concrete three feet thick, which extends for six and a half feet in front of the wall, and thus inside the basin, to act as an apron. This apron is extended six feet further by stone paving.

In the middle of the arc of the spillway, directly opposite the outlet of the basin, is an outlet tower, by which the discharge from the reservoir can be controlled. Directly opposite the lower opening in this tower is a baffle wall ten feet wide and three feet thick, against which the discharged water impinges and by which it is diverted to the right and left so as to spread over the basin. In front of the upper face of the tower, the bottom of the reservoir is paved with stone with grouted joints, the paved area being about twenty-five feet in diameter. In front of the outlet of the tower, in the basin, is a concrete apron twenty feet wide and twenty-seven feet long.

The spillway wall was made in 40-foot sections with vertical expansion joints of the tongue and groove type, the tongue being twelve inches wide at its base, eleven and a half at its top, and six inches deep. The face of each expansion joint was painted with a cold-water paint before the concrete of the adjoining section was run. Similar joints were placed in the concrete base and apron and directly under those in the wall. In the top of the wall are placed twenty-four vertical recesses to receive standards for supporting flashboards, provision being made for using flashboards to a height of eighteen inches.

At each end of the circular wall, at the outlet of the basin, are wing walls at right angles to the circular wall, their tops being at an elevation two feet lower than that of the wall. Twenty-five back from each wing wall is a cut-off wall, which extends for twenty-five feet into the embankment and rises to an elevation four feet higher than the crest of the spillway. These cut-off walls not only serve to prevent leakage around the spillway through the embankment, but also determine the end of the overflow section of the wall. The face of the embankment at the junction of each cut-off wall with the spillway wall and for about twenty to forty feet therefrom, is faced with a double layer of rip rap. The slope of the embankment on the up-stream side is two and a half to one and that on the down stream side is two to one. The crest of the spillway is 284 feet above mean tide water at Providence harbor, which is the elevation adopted for the surface of the proposed main reservoir, which will be separated by the Danielson pike from the reservoir just completed.

The masonry was founded on a gravelly soil of moderate water-tightness, the base being placed about five feet below the original surface of the ground. In order to prevent leakage of water under the dam, a blanket of impervious soil two feet thick was placed on the original surface for a distance of seventy-five feet from the spillway.

The construction of the North Scituate dam was done by contract by the E. W. Foley Contracting Corporation of New York, which was the lowest bidder. The work

was in charge of Frank E. Winsor, chief engineer for the water supply board. Work was begun September 2d, 1918, and was completed December 20th, 1918, and the water in the reservoir had raised to the level of the spillway about April 1st of this year. The work at the Pettaconset dam is in charge of Milton A. Bronson, city engineer of Providence.

COST OF CONCRETE BRIDGES.

We have received several inquiries as to probable cost of concrete bridges in view of prevailing high prices, and the following figures may prove of interest, which figures were sent us through the courtesy of Walter E. Emery, superintendent of highways of Peoria county, Ill:

Early in April contracts for five reinforced concrete bridges were let, the bid in each case being a lump sum for the completed structure, the prices including excavating for foundations and walls, cleaning out the channel, removing old structure where there was one, but not constructing the road surface on the bridge. The total bids and the same reduced to cost per cubic yard of concrete were: Sturm's Creek bridge, $1,012.80, or $24 per cubic yard; Clark's bridge (superstructure only), $849, or $22.34 per cubic yard; Edward's bridge, $2,140, or $20.75 per cubic yard; Walnut Ford bridge, $1,924, or $22 per cubic yard, or $16.35 per cubic yard if of plain concrete; Duffy's Creek bridge, $2,375, or $24.50 per cubic yard.

A HIGH-COST HIGHWAY.

The state of New Jersey, in constructing its section of the Lincoln highway, is spending an unusual amount per mile in an effort not only to render it as nearly perfect as possible for the present, but also to give it as long a life as could reasonably be expected. This section of the highway is 65 miles long and has for some time been carrying a volume of traffic estimated at over two thousand tons a day. The state is now reconstructing with concrete two sections totaling seventeen and a half miles at a cost of $1,157,264, or an average of more than $66,000 a mile. One of these required relocation of the route in order to eliminate thirteen dangerously sharp turns and a grade crossing of the Pennsylvania railroad. Many thousand dollars were spent for acquiring new rights of way, grading and drainage. Two miles of the other section required even more of this special work, $50,000 being spent for drainage alone.

The concrete pavement is being laid eighteen feet wide, eight inches thick at the sides and ten and a half at the center, or almost an inch thicker than the heaviest type of concrete road laid previously and considerably thicker than the greater part of such road as it is laid in many parts of the country. On each side of the concrete will be a three-foot macadam shoulder.

PARKING AUTOMOBILES RUINS ASPHALT.

Broad street, Columbus, O., between High and Third streets, has been used for parking automobiles, the vehicles occupying the center of the street. The street is paved with asphalt, except along the curbs, where wide stone block gutters were laid with the idea that these instead of the center of the street would be used for parking motor vehicles. At the recommendation of city engineer Maetzel and W. H. Eagle, city superintendent of asphalt, council on April 7th adopted an ordinance changing the parking space from the center to the south side of the street.

Superintendent Eagle's reasons for advocating this were as follows:

"1. When the street was paved it was designed with the idea of parking machines along either curb. To this end, wide stone block gutters were constructed along each curb. Had we known that it was intended to park in the center of the street, a different design would have been followed.

"2. Continued parking on the asphalt in the center of the street will seriously injure the asphalt paving. Continued dropping of oil and gasoline on asphalt will make it so soft that it will become wavy or uneven, and be very unsuitable for traffic. When warm weather comes and the asphalt gets soft, the wheels of machines will sink into the asphalt, if allowed to stand all day, and pavement will be full of ruts.

"3. Another objection is that with the center of the street occupied with machines during the day time, the street cleaning department is unable to clean this portion of the street and it presents an untidy appearance aggravated by oil that has dripped from machines, which holds dust and dirt, making it very difficult to clean."

A PROBLEM IN ANOPHELES ELIMINATION.

Preventing Breeding in Shallow Edges of Pond by Use of Cofferdams and Drains, and by Filling In.

In connection with a campaign to reduce malaria and, incidentally, mosquitoes in a small mill village and vicinity in Louisiana the problem of control from a mosquito-producing standpoint of the mill pond became most important. This mill pond, with an area of not more than ten acres, was an almost ideal mosquito-breeding section. The greater part of its surface was so covered with grass, water lilies and other aquatic growths that the mosquito larvae were safe from the minnows found in large numbers in the deeper water. Over a large part of the pond the water was less than eighteen inches deep. The general shape of the pond and the shallow areas are shown in the accompanying sketch.

With the dry season approaching it was not possible to waste enough water to dry up the shallow areas as the operation of the mill was dependent upon an adequate water supply; and in addition to being the main support of the villagers the mill was engaged in furnishing lumber for war work, and its full-time operation was a matter of some importance.

Several plans were considered for the control of breeding in the mill pond, oiling from spray cans being used as a temporary expedient while permanent work was in progress. The choice finally resolved itself into one of three methods as follows:

1. By means of men, either wading or in boats or on rafts, to grub up all growths, removing the vegetation which clogged the water and prevented the fish from destroying the mosquito larvae.

2. Building bulkheads along the edge of the shallow areas and filling behind these with earth, rubbish, sawdust or other material. In connection with this method, the construction of a flume from the sawdust pile about 1,000 feet away and the transportation by water carriage of sawdust for filling was considered.

3. The drainage of the shallow areas.

The first method was considered too costly, inasmuch as at the best it would be but a temporary expedient. It was thought likely that before the end of the mosquito season another growth would have sprung up, while the

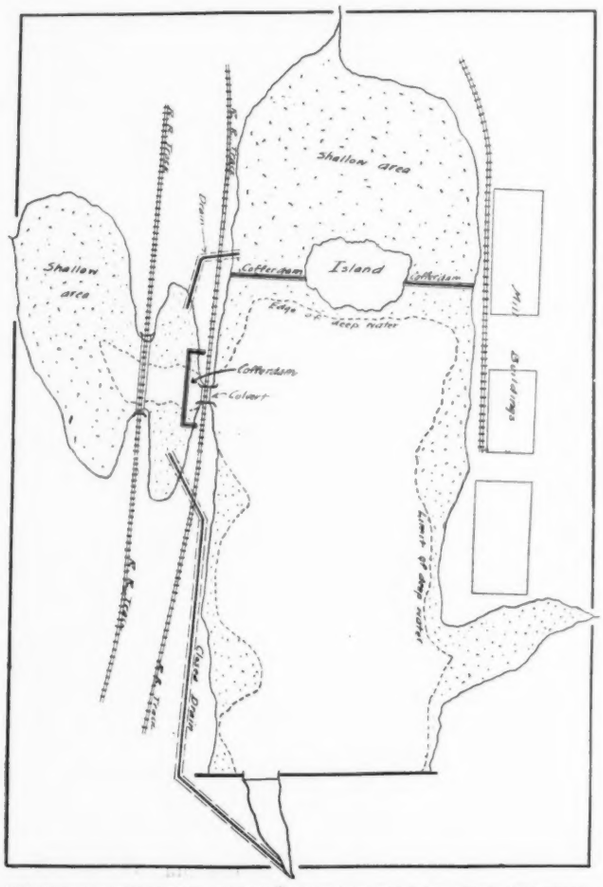
work would certainly have to be repeated with every season.

The second plan was considered costly and having certain points in its disfavor, such as flood damage; but was abandoned mainly because nearby sources of material for filling were inadequate and a long haul would have been necessary to secure enough filling to complete the work.

It was finally decided to drain most of the shallow areas and to fill those areas which could not be economically drained. The fact that all the feeding streams to the pond flowed through the shallow areas complicated matters, but a general plan was adopted along the following lines:

A coffer-dam, with its top at an elevation slightly above the level of the spillway of the pond, would be constructed between the small island that marked the lower end of the shallow area in the north end of the pond and the shores of the pond opposite, thus cutting off from the deeper water a considerable shallow area. The west shallow arm was also to be cut off by means of a one-way flow gate in the culvert under the easterly of the two railroads. The shallow areas were then to be drained by means of a ditch leading south between the two railroads and finally turning into the stream again below the dam.

This, of course, practically cut off all the flow into the pond, but it was found that the ordinary dry-weather flow of the feeding streams was not sufficient to make up the evaporation loss on the shallow areas. By constricting the entrance to the drainage ditch it was believed that storm flow would fill up these drained shallow areas and overflow the coffer-dams into the lake in sufficient volume to supply all water needs.



SKETCH OF POND, SHOWING METHOD OF TREATMENT.

This plan left untreated some small areas along each side of the pond and a small bay on the east side. These were to be bulkheaded and filled where they could not be cleaned economically.

The scheme was successfully carried out as outlined above with a few minor exceptions, including the location of the ditch and the type of storm gate in the culvert under the railroad.

The ditch draining these places had originally been designed as an open ditch mainly because it was feared that a closed drain might be clogged from the large amount of debris carried by the very violent storms that occur in this section of Louisiana; but in excavating for the ditch a very fine white sand was encountered, which, when wet, flowed almost like water. It was therefore necessary to abandon the open ditch. With a closed drain necessary, it was decided to transfer it from the previous location between the railroads to the narrow strip between the pond and the easterly of the two railroads, since considerable excavation was saved by the new location. A wooden box drain was used, with manholes at frequent intervals, and this was placed low enough to almost completely drain the areas cut off by the coffer-dams. To care for the area beyond the railroad track and north of the island a small culvert was constructed under the railroad track.

A swing gate, to open only when the head of water became greater on the western side, had been planned for the 6-foot by 6-foot culvert under the track and connecting the western arm with the main body of the lake. The railroad engineers insisted on an almost clear opening through this culvert for possible storm conditions, as, according to their run-off formula, a clear opening of this size was necessary. As stated, in time of storms (which are usually violent) a great deal of drift and debris is carried, and this, it was feared, would obstruct such a gate and either cause it to remain open, thus draining the pond, or to prevent free opening and cause overflow of the tracks.

It was therefore decided to leave the culvert free and clear and to construct about it, on the west side, a coffer-dam of such length that, with an overflow depth of one foot, the heaviest recorded storm flow would be taken care of.

All coffer-dams were constructed of 2 x 6 timbers, driven about 6 feet into the bottom of the pond, lapped with inch board to make them tight and braced with 4 x 6 timbers. The coffer-dams were cut off at a height four inches above the level of the spillway of the pond. With this work completed and with the remaining low areas filled or cleaned, the pond was no longer a sanitary menace. No accurate statement of the cost can be given, as part was by contract and the remainder by day labor, while much of the timber was picked up here and there about the mill; but the cost was approximately $1,300.

HOG FEEDING IN SPOKANE.

Since the termination of war operations the amount of garbage reaching the garbage pails in Spokane, Washington, has been increasing, and the amount disposed of by the Crematory Division during the month of March, 1919, was greater by 14 per cent than that disposed of in March, 1918, and slightly more than in March, 1917. This drifting back to pre-war extravagance raised the question of garbage disposal and the utilization of wastes, and a plan has been developed and arrangements made whereby Seattle's garbage will be collected without cost to the householders and will be utilized for feeding hogs.

Hog feeders have agreed to purchase, at cost of collection, all edible garbage delivered to them at the crematory plant. To secure the co-operation of the public in the matter the Crematory Division will collect without cost to the householders an amount of inedible waste equal in volume to the edible waste collected. In order to take advantage of this plan, the householder must furnish proper waste receptacles with covers and handles. The waste materials must be carefully segregated and only the edible material placed in what is termed the garbage can. This can must be scalded from time to time. The cans to be collected under this plan will be placed on the edge of the street adjoining the premises or at the rear of the lot. Any householder producing edible waste which is now being disposed of by burning, either in range or by sending to the crematory, may have it collected under the above plan by telephoning to the Crematory Division. Arthur E. Peterson, the superintendent of the division, to whom we are indebted for this information, is endeavoring to secure the complete co-operation of the public, which is necessary to make the plan a success.

PAVEMENT GUARANTEES.

Practices of Counties Throughout the Country as to Requiring Them, and Opinions of County Officials as to Desirability of Them.

The report of a committee of the American Road Builders' Association on the subject of requiring contractors for pavement construction to guarantee the pavements was published and commented on in the March 8th issue of Municipal Journal; and in the issue of March 15 a summary was given of the opinions of several hundred city engineers on the subject.

Desiring to know how county highway officials felt on this subject, we included questions concerning it in the questionnaire sent to such officials during the latter part of March, these questions being as follows: "Does your county require contractors to give guarantee bonds?" "For how long a period is the guarantee?" "Do you consider guarantees desirable for all kinds of pavement?" "If not, for what kinds is it desirable?" "Have you formed conclusions from any personal experience that are favorable to or against pavement guarantees?"

The answers to all but the last question were given in tabular form in our issue of April 19. These replies may be summarized as follows:

"Does your county require contractors to give guarantee bonds?" Of the 123 countries replying, 47 require guarantees (one specifying "for maintenance" and two "for faithful performance of contract"); 10 require them for some kinds of pavement or certain classes of work; 2 expect to later on; and 54 do not require guarantees; while 10 do no road work by contract.

"For how long a period is the guarantee?" Seven report 1 year; one, 1 to 2 years; one, 1 to 5 years; one, 2 years; one, 2 or 3 years; one, 3 years; one, 3 years for brick; one, 4 to 10 years; eleven, 5 years; one, 5 to 10 years; two, 10 years; fifteen, until work is completed; one, at the engineer's discretion; and four state that the time is not fixed.

"Do you consider guarantees desirable for all kinds of pavement?" 28 answer yes, and 61 answer no.

"If not, for what kinds is it desirable?" The replies to this were almost too varied to summarize. Four named asphalt only, six named asphalt and other kinds of pavement; seven named brick as one of several; one named concrete alone, and eight as one of several. Four thought guarantees desirable for all hard pavements, several for all bituminous pavements; while "patented pavements," "better types," and "gravel roads" were among the other answers.

The answers to the last question can be divided into those whose experience had led them to favor guarantees and those whose experience was unfavorable. Those in the first class were: E. C. Minton, county engineer of Tippecanoe Co., Indiana; C. E. Stebbins, county engineer of Allen Co., Kansas ("Desirable for all kinds of pavement") and H. L. McNary, county clerk of Anderson Co., Kansas, who uses the same words; W. S. Merrile, county highway engineer of Kalkaska Co., Michigan; Walter J. Lehner, county engineer of Macomb Co., Michigan ("We believe them to be good insurance for proper workmanship and material"); Thos. S. Leavitt, county highway engineer of Polk Co., Missouri; Wm. C. Cattell, county engineer of Gloucester Co., New Jersey ("Believe guarantee bond increases cost, but believe in bond for performance of contract"); Garwood Ferguson, county engineer of Passaic Co., New Jersey ("A guarantee is desirable for a period of from one to two years as it makes irresponsible contractors, who might have a contract, perform their work in a better manner"); D. L. Peters, superintendent of roads of Luna Co., New Mexico; C. Grossman, county highway engineer of Lewis Co., Tennessee; H. A. Murray, county engineer of Kittitas Co., Washington.

Those whose experience leads them to oppose guarantees were: W. M. Francisco, of Lake Co., Florida; A. R. Carter, county superintendent of Highways of Winnebago Co., Illinois; E. B. Douglas, county surveyor and engineer of Jackson Co., Indiana ("Better spend money for competent, honest inspectors"); John J. Griffith, county engineer of Marion Co., Indiana ("Guarantees make pavement cost more"); Ray H. Bower, Tipton Co., Indiana; Robt. E. Gibbons, county engineer of Vigo Co., Indiana; Howard H. Horton, county engineer of Wayne Co., Indiana ("Can take care of repairs at less cost to us"); R. E. Robertson, county engineer of Cerro Gordo Co., Iowa ("Guarantee desirable only when contractor is putting in the work by his own specifications"); Edw. Cook, county engineer of Chase Co., Kansas; Wm. S. Canning, county engineer of Henderson Co., Kentucky ("Should not both specify how to be done and then require guarantee of results"); E. T. Hayman, county road engineer of Anne Arundel Co., Maryland ("Desirable only for patented pavement; we do not contemplate or expect to permit any further patented pavement construction"); Geo. P. Trax, road engineer of Talbot Co., Maryland; D. P. Smith, Case Co., Michigan; H. J. Brown, county engineer of Lincoln Co., Missouri; Joshua Doughty, Jr., county engineer of Somerset Co., New Jersey; W. J. Hardin, acting county engineer of Sussex Co., New Jersey; Thos. M. Brennen, superintendent of highways of Niagara Co., New York ("No engineer has a moral right to require a contractor to follow specifications that the contractor may know to be faulty and then require him to give bonds"); John E. Hodgman, county engineer of Saratoga Co., New York; Matthew McEvoy, superintendent of highways of Yates Co., New York; J. H. Asher, county surveyor of Madison Co., Ohio; Ralph Strait, county surveyor of Muskingum Co., Ohio; John F. Gallier, county surveyor of Wood Co., Ohio; T. P. Paxton, commissioner of public works of Okmulgee Co., Oklahoma; C. E. Coile, county engineer of Green Co., Tennessee ("Do not con-

sider maintenance guarantees desirable for any kind of standard pavement. Have never had a yard to fail"); Guy G. Harvey, district engineer, Lincoln Co., Washington; E. A. White, county engineer of Pierce Co., Washington; J. K. McGrath, road engineer of Fayette Co., West Virginia ("All experience has been against"); J. R. Wilson, county road engineer of Harrison Co., West Virginia ("Contractors put about 15% on bids to cover same when repairs do not run 5%"); and Philip J. Walsh, engineer and general superintendent of Kanawha Co., West Virginia.

These opinions of county officials, said to be based of guarantees, although about half of the counties follow on experience, show only about one-fourth in favor the practice of requiring them.

ACTIVATED SLUDGE WITHOUT COMPRESSED AIR.

Experiments at Sheffield, England, Indicate Possibility of Substituting Mechanical Stirring for Use of Compressed Air—Aerated by Surface Absorption.

Early in 1916 some experiments were begun at the sewage treatment works of Sheffield, England, in treating sewage by the activated sludge method without the use of compressed air, which experiments have been continued and are to be extended in scope. They have been in charge of John Haworth, chemist and manager of the Sheffield Corporation Sewage Works, and are briefly described by him in a recent issue of Municipal Engineering of London, England. He has recently constructed two tanks for making experiments on a larger scale, which are treating 50,000 to 60,000 gallons of trade sewage per day.

Early in 1916 a tank of 800 gallons capacity was fitted with a paddle stirrer, and with an apparatus for inducing air mechanically. After this tank had been in use for some time it was found that by suitably regulating the revolutions of the paddle, purification could be obtained satisfactorily to the extent of at least three fillings of the tank per day, without the use of the aerator. The tank has been operated during the last two years in this manner.

The results of this and other experiments led to the conclusion that, given suitable agitation to obtain thorough intermixing of the activated sludge with the sewage and to prevent settlement, the necessary air required to maintain the biological activity might be obtained by surface aeration. To accomplish this it was found necessary to produce constant change of surface of the liquid.

The question also suggested itself, and is worthy of investigation, whether in the case of systems where air is blown through the sewage, the aeration is not largely brought about by solution at the surface, by reason of the large disturbance and change of surface exposed by the rising bubbles, rather than by solution of oxygen from the bubbles themselves. It was evident that, except in the case of small tanks, the horizontal paddle type of agitator would not be quite suitable, and two tanks of a different type have recently been designed and put into operation.

The tanks are 30 feet by 14 feet by 4 feet deep, with level floors. Division walls have been constructed to form a continuous channel, approximately 3 feet 3 inches wide, along which the sewage can circulate and return to an agitator placed at one end of the tank. The agitator consists of two vertical pistons of the Root's blower type. On rotating the agitators, the sewage is circulated at a velocity sufficient to prevent settlement of the sludge. A velocity of 1½ feet to 2 feet per second has been found ample to accomplish this result. A mechanical aerator was fixed in one of the tanks, in case additional air was required, but it has been found unnecessary. By means of the agitators and the special construction of the tanks, constant change of surface occurs. One tank was put into regular use in October last. Humus, washed from material taken from a contact bed, was put in to a depth of about 6 inches, and the tank filled with sewage.

After ten days' agitation the sludge was completely coagulated and flocculent, and found to be sufficiently activated to allow the experiment to proceed. The tank was then worked on the fill-and-draw principle, and has purified sewage satisfactorily and continuously during the last three months, three fillings of the tank per day being dealt with. The liquid treated is an industrial sewage, containing at times a large proportion of iron liquors, soaps, etc. These at times have required extended periods of treatment.

The accompanying table indicates the character of the sewage dealt with and the results obtained.

The power absorbed by the process described is calculated at 20 horsepower per million gallons, but there appears no doubt that the agitators employed could operate a much larger tank with only a slight additional power consumption. There is no doubt that a variety of types of agitator might be devised to operate such a process, probably with greater efficiency. Several types are at present under consideration. The sewage disposal committee of the corporation have already authorized the extension of the experiments to deal with the whole of the flow of their Tinsley works as soon as suitable plant can be obtained.

LIME FOR ILLINOIS CONCRETE ROADS.

It is reported that the Illinois state highway department has decided to try the use of hydrated lime on three half-mile sections of concrete road in the vicinity of Chicago, provided that manufacturers of the lime donate the fifty to sixty tons of that material that would be required.

TEXAS HIGHWAYS UNDER CONSTRUCTION.

The report for May 3 of Geo. A. Duren, state highway engineer of Texas, shows that 7 of the 389 projects for state improvement of highways have been completed, totaling about 125 miles; there are under construction 80 projects, totaling 1126 miles and estimated to cost $4,862,474; and there are under contract 87 projects. The total amount paid out to date was $554,767.

Analysis of Samples from Experimental Aeration Plant, Sheffield Sewage Works, from November 27, 1918, to January 31, 1919.—Number of Samples, 45.—Results in parts per 100,000.

	Sewage			Effluent		
	Best.	Worst.	Average.	Best.	Worst.	Average.
Suspended solids	11.6	69.8	34.20	—	—	—
Oxygen absorbed in four hours	3.32	13.38	7.10	.15	.60	.32
Free and saline ammonia	1.224	6.41	3.34	.039	2.275	.424
Albuminoid ammonia	.304	1.74	.751	.022	.129	.05
Chlorine	6.7	16.8	9.8	6.4	16.0	9.29
Nitric nitrogen	—	—	—	1.55	.16	.75
Dissolved oxygen taken in five days at 65 deg. Fah.	—	—	—	.013	.389	.153

NEWS OF THE SOCIETIES

May 19-24.—NATIONAL ELECTRIC LIGHT ASSOCIATION. Annual convention, Atlantic City, N. J. Secretary, T. C. Martin, 29 W. 39th St., New York.

June 9-13.—AMERICAN WATER WORKS ASSOCIATION. Thirty-ninth annual convention, Iroquois Hotel, Buffalo, N. Y. Secretary, J. M. Diven, 47 State street, Troy, N. Y.

June 17-19.—TRI-STATE WATER AND LIGHT ASSOCIATION OF CAROLINAS AND GEORGIA. Ninth annual convention, Greenworth, S. C. Secretary treasurer, W. F. Stieglitz, Columbia, S. C.

June 17-20.—AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual meeting, St. Paul-Minneapolis. Secretary, Charles W. Hunt, 33 W. 39th St., New York, N. Y.

June 23-26. — SOUTHWESTERN WATER WORKS ASSOCIATION. Annual convention, Coates House, Kansas City, Mo. Secretary, E. L. Fulkerson, 617 Washington St., Waco, Tex.

June 24-27. — AMERICAN SOCIETY FOR TESTING MATERIALS. Twenty-second annual meeting, Hotel Traymore, Atlantic City, N. J. Secretary, University of Pennsylvania.

June 24-27.—INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Annual convention, Kansas City, Mo. Secretary, Gen. Fire Marshal James McFall, Emergency Fleet Corporation, U. S. Shipping Board, Philadelphia, Pa.

Oct. 27-30.—AMERICAN PUBLIC HEALTH ASSOCIATION. Annual meeting, New Orleans, La. Secretary, A. W. Hedrich, 169 Massachusetts ave., Boston, Mass.

Nov. 12-14.—AMERICAN SOCIETY FOR MUNICIPAL IMPROVEMENTS. Annual convention, New Orleans, La. Secretary, Charles C. Brown, Springfield, Ill.

National Electric Light Association.

The forty-second annual convention of the National Light Association will be held at Atlantic City, May 19 to 22. Some of the features of the program follow:

At the first general and executive session, held Tuesday morning, Alex Dow, Detroit Edison Co., will report as chairman of the rate research committee; E. E. LaSchum, New York, general superintendent, American Railway Express Co., will read a paper on "The Electric Truck in Modern Transportation."

The second general and executive session, on Tuesday evening, will deal with questions of public policy. There will be a paper on "Sale of Securities to Customers and Resident Citizens," by W. H. Hodge, Chicago, H. M. Byllesky & Co.; W. W. Freeman, Cincinnati, Union Gas & Electric Co., will report as chairman of the public policy committee, and T. W. Lieb, New York, New York Edison Co., for the National Committee on Gas and Electric Service.

The third session, on Wednesday morning, will be devoted to association matters and to an address on "Regional Power Systems," by Dr. George Otis Smith, Washington, Geological Survey, Department of the Interior.

At the fourth session, Thursday morning, a number of committees will report, including the following, under the chairmen named: Safety rules and accident prevention (William C. Eglin, Philadelphia Electric Co.); lamps (Frank W. Smith, New York, United Electric Light & Power Co.); form of annual report to commissions (W. J. Myers, New York, United Light & Power Co.). Professor Joseph W. Richards, Lehigh University, secretary, American Electrochemical Society, will read a paper on "The Importance of Electrochemistry."

The Accounting Sections will meet on Tuesday and Wednesday afternoons, when the following committees will report: Cost accounting and statistics (A. D. Spencer, Detroit Edison Co.); commission accounting rulings (H. E. Addenbrooke, Chicago, Commonwealth Edison Co.); operating records (C. A. White, Edison Electric Illuminating Co. of Boston); purchasing and storeroom accounting (W. F. Stevens, Edison Electric Illuminating Co. of Boston); customers' records and billing (H. C. Schlegel, New York Edison Co.).

The commercial section will hold five sessions, of which some of the features will be reports by the following committees: Commercial service and relations with customers (R. F. Bonsall, Consolidated Gas, Electric Light and Power Co. of Baltimore); wiring (R. S. Hale, Edison Electric Illuminating Co. of Boston); commercial aspects of lamp equipment (O. R. Hogue, Chicago, Commonwealth Edison Co.); commercial aspects of street and highway lights (C. G. Durfee, Rochester Railway & Light Co.); residence lighting (C. W. Johnson, Jackson, Hodenpyl, Hardy & Co.); outdoor lighting (H. H. Magdsick, Cleveland, National Lamp Works); lighting of public buildings (G. Bertram Regan, Philadelphia Electric Co.); store lighting (A. L. Powell, Harrison, General Electric Co.). Before the power sales bureau on Wednesday afternoon, there will be a discussion on "Effect of War on Isolated Plant Costs," led by I. Lundgaard, Rochester Railway & Light Co., and a paper on "Power Factor in Customers' Installations," with discussion led by R. H. Knowlton, Philadelphia, United Gas Improvement Co. The electric range committee will discuss the possibilities of increasing that business. On Wednesday evening, the power sales bureau, at a dinner, will hear a paper on "Electric Industrial Trucks and Tractors and Their Relation to the

(*Continued on page* 358)

PROBLEMS CITIES ARE STUDYING WITH EXPERTS

Cumberland county, Portland, Me., contemplates building a highway and trolley BRIDGE, to cost $1,000,000. The consulting engineer is A. W. Pease.

Red Wing, Minn., contemplates the construction of an ELECTRIC LIGHT and POWER PLANT to cost $350,000. The consulting engineer is L. P. Wolff.

Garvin county, Pauls Valley, Okla., is to make ROAD IMPROVEMENTS to cost $69,000, including roads and bridges. The plans were prepared by the consulting engineer, W. E. Moore.

Swainsboro, Ga., will vote on issuance of $50,000 of bonds for installing WATERWORKS and SEWERS, according to plans prepared by the consulting engineers, the J. B. McCrary Co.

SEWERAGE and WATERWORKS IMPROVEMENTS are to be made by Picher, Okla. $170,000 will be expended for waterworks and $80,000 for sewers, for which bonds have been carried. The consulting engineers are Mackintosh & Walton.

Henryetta, Okla., voted $310,000 WATERWORKS IMPROVEMENT bonds, covering additions to pumping equipment, filtration plant, settling basins, supply line and distribution system. The consulting engineers are Burns & McDonnell.

Arkansas City, Kan., is to build a concrete STORM SEWER, for which plans have been prepared by the consulting engineer, Charles E. McCrae.

Cleveland Heights, O., is to make PAVING IMPROVEMENTS in various streets, according to plans prepared by the consulting engineers, the F. A. Pease Engineering Co.

SEWERAGE and WATERWORKS IMPROVEMENTS are to be made by the city of Niles, Mich., to cost $118,000. The consulting engineer is Chas. W. Cole.

Lindsay, Okla., is to make SEWERAGE IMPROVEMENTS, including sewage disposal plant, to cost $65,000, for which plans have been prepared by the consulting engineers, the Benham Engineering Co.

Preliminary plans have been adopted by the city of Columbia, Ill., for additions to the ELECTRIC LIGHT and POWER PLANT, consisting of extension to building, and new generating equipment. The consulting engineers are the firm of Fuller & Beard.

Rock Port, Mo., is to make SEWERAGE IMPROVEMENTS, for which bids have been advertised, consisting of approximately three miles of vitrified pipe sewers. The consulting engineers are W. B. Rollins & Co.

INDUSTRIAL NEWS

Price Stabilization Plans Collapse.

An open market has been created in the steel industry, representatives of the Railroad Administration and members of the General Committee of the American Iron and Steel Institute having failed to agree on minimum stabilization prices, after repeated conferences. The steel manufacturers refused to make any concession in prices to the Railroad Administration officials, maintaining that costs were so high that reductions were impossible at the present time without cutting wages. It was the contention of the Railroad Administration that the steel companies could make profits on the price schedule agreed upon between the producers and the Industrial Board of the Department of Commerce, nearly equal to those which were rolled up during the war period.

This marks the final collapse of the price stabilization plans of the Administration attempted through the Industrial Board. The resignations of all members of that board, including that of chairman Peek, have been in the hands of Secretary Redfield for some weeks. Following the first deadlock between the Railroad Administration and the Industrial Board, it is understood that President Wilson urged further conferences. These have now proved futile. Chairman Peek, in a number of controversial statements, lays the blame on sinister influences, but the real causes of the collapse of the plan and the motives of those concerned are not understood.

According to leading steel producers, the recognized open market will mean higher prices on steel products rather than lower. Bidding in general has a tendency at present to hold to the prices agreed upon by the Industrial Board, but some producers are already quoting higher.

Markets for Sewer Pipe.

According to consul general H. W. Harris, Habana, Cuba, about 600 carloads of vitrified pipe are said to be imported into Cuba annually. The matter of sewerage in municipalities receives less prompt attention than in the United States, owing to the difficulty of financing municipal improvements. But there is said to be considerable demand here for various sizes of pipe on the large modern sugar plantations for sewerage, culvert, drainage, and other purposes. Many of these plantations have railway lines of 50 to 100 miles in extent. Large pipe is used on many of these lines for culvert purposes. For surface water and other drainage Cuba relies to a considerable extent on cement pipe.

Consul William Dawson, Montevideo, Uruguay, reports that Uruguay should offer a good market for vitrified sewer pipe during the next ten years. Projects are already on foot for sanitation work in sixteen interior cities, as well as sewerage in the outlying districts of Montevideo. The work has not as yet been authorized, but it seems highly probable that much of it will be undertaken. An American contractor estimates that some $10,000,000 worth of necessary sanitation work will be executed in this country in the comparatively near future.

The principal competitors of American vitrified pipe will be the English product and cement pipe made on the spot. English pipe is already well introduced here, practically all the vitrified pipe used having come from England. In addition to familiarity with the product, the English manufacturer has the further advantage of complying more closely with local requirements. The American standard vitrified pipe will not satisfy local specifications, particularly as respects porosity, and many American manufacturers would probably have to turn out a special grade for this market.

As respects cement pipe, an American contracting concern which recently put in sewerage works in three Uruguayan cities made its pipe on the spot. This proved particularly advantageous on account of the shortage of vessels and high freights. Under normal conditions vitrified pipe will probably receive the preference if it can approach cement pipe in price. Cement is manufactured by a Uruguayan concern having a capacity of 400,000 barrels per year.

The American-La France Fire Engine Co., Inc., Elmira, N. Y., announces the recent receipt of the following orders for equipment: Belize, British Honduras, two type 10 pumping engines; Belize, British Honduras, one type 14 service truck; Belize, British Honduras, one type 75 chemical engine; Clinton, Iowa, one type 12 combination car; Flint, Mich., one type 12 combination car; Millburn, N. J., one type 40 combination car; Philadelphia, Pa., one type 31-6 truck tractor; Port Jervis, N. Y., one type 14 service truck; Pottsville, Pa., one type 75 ft. aerial truck; Syracuse, N. Y., one type 17-6 tractor.

NEWS OF THE SOCIETIES

(*Continued from page 357*)

Central-Station Load," by E. J. Bartleft, Cleveland, Baker R & L Co.

The Electric Vehicle Section will hold sessions on Tuesday and Wednesday afternoons, at which the following committees will report: Federal and municipal transportation (James H. McGraw, New York); garage and rates (C. H. Miles, Edison Electric Illuminating Co. of Boston); legislation (C. A. Freeman, Chicago, Walker Vehicle Co.); manufacturers and central station co-operation (George B. Foster, Chicago, Commonwealth Edison Co.); standardization (E. R. Whitney, Philadelphia, Commercial Truck Co. of America); transportation engineering (F. M. Feiker, New York). The following papers will be read: "The Recent and Future Status of the Electric Vehicle," Rodney H. Merrick, Philadelphia, Commercial Truck Co.; "A Message from Electrical Vehicle Users," George B. Foster, Chicago, Commonwealth Edison Co.; "The Proper Application of the Electric Vehicle," F. F. Sampson, New York, Exide Battery Depots.

The Technical Hydroelectrical Section will hold three sessions, at which the following committees will report: Prime movers (N. A. Carle, Newark, Public Service Electric Co.); underground construction and electrolysis (E. B. Meyer, Newark, Public Service Electric Co.); overhead lines and inductive interference (A. E. Silver, New York, Electric Bond & Share Co.); electrical apparatus (R. F. Schuchardt, Chicago, Commonwealth Edison Co.); meters (F. V. Magalhaes, New York Edison Co.).

Conference of Weights and Measures Officials.

Weights and measures officials of the United States will meet in annual conference at the National Bureau of Standards, Washington, D. C., for four days—May 21-24, inclusive—according to a decision of the executive committee of that association, which has power to determine the date and arrange the program. Tentative plans have been completed and invitations to send representatives have been extended to the governors of the several States and the Commissioners of the District of Columbia. Due to the demands incident to the war upon the weights and measures officials, especially those of the Bureau of Standards, some of whom are officers of the association, no annual conference has been held since 1916. This has caused much important business to accumulate, which, with the discussion of new conditions arising as a result of the war, promises to make the conference this year one of the busiest and most interesting ever held.

The objects of these conferences are to bring an exchange of views between the men who are engaged in the important task of inspecting weighing and measuring apparatus and to secure greater efficiency and uniformity in the work. When it is remembered that each State legislates independently on the subject of weights and measures laws it will be readily seen that there will be a lack of uniformity. This condition did exist very largely before the formation of the association, and one of the first things done was to endeavor to correct it. A model for a uniform State law as well as one for a city and county law and a uniform table for tolerances on weighing and measuring apparatus were drafted. These have been widely adopted throughout the country and as a consequence much has been accomplished toward eliminating the chaotic con-

ditions relating to nonuniformity in weights and measures laws.

The first conference was held in January, 1905, at which time there were present, in addition to officials of the Bureau of Standards, representatives from eight States and the District of Columbia. This number has steadily increased from year to year up to the last conference, when the representation numbered 83, comprising delegates from 21 States, the District of Columbia, Porto Rico, and the Philippine Islands. In addition 57 visitors, representing all of the large railroads of the country and numerous manufacturing concerns having weights and measures problems to solve were present, attesting to the important position the association has attained as a national organization.

The officers are: Dr. S. W. Stratton, Director of the Bureau of Standards, president; W. L. Waldron, State Superintendent, New Jersey, vice president; F. G. Barnard, sealer, Michigan, treasurer; and Maj. L. A. Fischer, chief of the weights and measures section of the Bureau of Standards, secretary. These, in addition to the following, compose the executive committee: J. G. Farrel, New York; G. E Carpenter, Vermont; C. G. Johnson, California; L. S. Schoenthal, District of Columbia; T. F. Egan, Connecticut; J. M. Mote, Ohio; F. G. Tighe, New York City; W. F. Cluett, Illinois; E. C. Lytton, Iowa; J. R. Smith, Tennessee; O. N. Creswell, Arizona; I. M. Howell, State of Washington; and Thure Hansen, Massachusetts.

United States Good Roads Association.

A large attendance of representatives of automobile clubs, chambers of commerce and good roads associations was present at the meeting of the United States Good Roads Association held at Mineral Wells, Tex., April 14 to 19. The meeting of the Bankhead National Highway Association was held at the same time.

Among the features of the meeting were the spirited fight between Oklahoma and Texas for the Bankhead highway route (which Texas won), and the organization of the Texas $75,000,000 club to agitate for the adoption of a constitutional amendment for a $75,000,000 good roads bond issue.

Among the speakers were Senator Bankhead, former governor George W. Donaghey, of Arkansas, who said that he was elected because he knew how to mix concrete; governor Larrazola, of New Mexico, governor Pleasant, of Louisiana, and governor Brough, of Arkansas.

George A. Duren, state highway engineer of Texas, in making a plea for highway improvement, said: "A road and bridge tax of 15c. on $100 is not sufficient to maintain a road under present conditions. One-half cent. per ton mile is approximately one-third the cost of a gravel road under light traffic. Some counties have voted an additional 15c. maintenance tax; 30c. per $100 valuation is barely sufficient under the traffic conditions of Texas to maintain a road without providing one cent for construction or reconstruction.

"The use of a highway having a continuous use of more than 45 vehicles per day is an economic sin except when paved with a hard surface of such width as may be required by the intensity of traffic. Intercounty roads, state highways and national highways are highways that will greatly exceed in average traffic 45 vehicles per day. State and federal aid should not be used except in aiding construction of hard surface paved highways. Gravel should be used only for private drives and local county traffic."

Resolutions were adopted asking that highway authorities throughout the country give preference to discharged soldiers and sailors. Other resolutions adopted favored the creation of a Federal system of interstate highways operated by a Federal commission; advocated higher pay for highway engineers; highway engineering courses in State Universities and A. & M. Colleges, and favored renewed efforts to rush completion of the Bankhead Highway.

J. A. Rountree of Birmingham was re-elected secretary of the Bankhead Highway Association and director general of the United States Good Roads Association. L. G. Jones of Talladega, Ala., was elected treasurer of the Bankhead Association and W. W. Heaton of Tallapoosa, Ga., director at large.

Following are the officers elected for the United States Good Roads Convention: Senator John H. Bankhead, Alabama, president; Governor Charles H. Brough, Alabama, first vice president, and Governor O. A. Larrazola, of New Mexico, second vice president. The 1920 Convention will be held at Hot Springs.

PERSONALS

Daniels, Francis E., formerly captain in the Sanitary Corps, and camp sanitary engineer of Camp Lee, Va., has received his discharge from the army and has returned to the engineering division of the Pennsylvania state department of health at Harrisburg.

Knott, Virgil P., associate professor of civil engineering, Arkansas State University, has been appointed highway engineer, succeeding Hugh Carter, resigned.

Lea, S. H., who has been engaged in construction work for the Government at the Langley Aviation Field, is now appointed for Mineral County, West Virginia, with headquarters at Keyser.

Petty, William E., who was chief draftsman for Division No. 3, New York State Highway Department, until he was assigned to build the roads in Camp Eustis, Virginia, has been appointed confidential agent for the highway department, with office at Albany, N. Y.

Stamps, J. A., chief engineer of the Atlanta waterworks, died recently. He had been connected with the waterworks department for the past 36 years.

Thomas, Roy, previously engineer of Gila County, has been appointed city engineer of Miami, Ariz., and will be in charge of flood-control work.

Tyler, Major Max C., Corps of Engineers, U. S. A., has been assigned to duty in charge of the District of Columbia water supply system, the reclamation of the Anacostia River and the improvement of the Potomac River, succeeding Col. W. L. Fisk, U. S. A., retired.

Following the appointment of Capt. F. S. Greene as state highway commissioner of New York, the main office force has been reorganized as follows: First deputy commissioner, Paul Schultze, of Albany, succeeding H. Eltinge Breed; second deputy commissioner, Irving V. A. Huie, of New York City, succeeding F. W. Sarr; third deputy commissioner, Charles Van Amburgh, of Broome county, succeeding Benjamin Rice, and secretary of the commission, Royal K. Fuller succeeding Irving J. Morris.

Mr. Schultze, the new first deputy, has had wide experience in highway construction and was second deputy commissioner from 1913 to 1915. Upon graduation from the Rensselaer Polytechnic Institute in 1891, he entered the New York State Engineer's department as assistant engineer in charge of bridges and roads, remaining until 1900. From 1900 to 1908 he was city engineer and superintendent of public works in the city of Utica, N. Y.; from 1908 to 1912, county superintendent of highways of Oneida county; from 1912 to 1913, city engineer of Troy, N. Y. Since 1915 he has been a consulting highway engineer and contractor in Albany, N. Y., and during the war was superintendent of roads at the Jacksonville Powder Works in Tennessee, and built the roads at the du Pont Powder Works at Carney's Point and Deepwater, N. J. As first deputy he will have charge of all new highway construction work of the department.

Mr. Huie, who will be second deputy in charge of maintenance, is a graduate in civil engineering at New York University, 1911. Upon graduation he entered the office of F. A. Molitor, consulting engineer, New York City, where he remained until 1916. Early in the war he was commissioned first lieutenant of engineers, and during the war he was advanced to the rank of major of engineers.

Mr. Van Amburgh, the third deputy, who will have supervision of all work on town highways, has been county engineer of Broome County.

LEGAL NOTES

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Injury of Patient in City Hospital—Negligence of Nurse—Liability.

(Ky.) In the performance of public or governmental duties, a municipal corporation is not liable for negligent acts of its employés.—Browder v. City of Henderson, 207 S. W. 479.

(Ky.) Where a patient in a city hospital was scalded by a nurse's negligence, the city maintaining the hospital under the power given it by Ky. St. § 3290, cl. 4, as a governmental function, was not liable for the injury.—Id.

That some of the patients in a hospital maintained by a city, under Ky. St. §3290, cl. 4, are pay patients, does not make the city liable for injuries to a patient therein.—Id.

Town Hog Pound Near Residence.

(Miss.) It was wrongful and negligent for defendant town to build a hog pound about 12 feet from plaintiff's residence and against her protest, upon property of the city, and actionable negligence to fail to remove a hog from the pound after notice of its death.—Crawford v. Town of D'Lo, 80 So. 377.

Storm Sewer Damage to Merchandise—Negligence of Merchant.

(Wash.) Where city was negligent in maintaining inadequate storm sewers, and merchant was negligent in permitting backwater trap to become clogged, with result that stock of goods was damaged, the storekeeper could not recover from the city.—F. W. Woolworth Co. v. City of Seattle, 177 P. 664.

In merchant's action against city for damage to stock of goods by storm backwater, evidence held to show that the damage was caused by a defective backwater valve under plaintiff's control, so that the city was not liable.—Id.

Speed Limits for Fire Apparatus—Responsibility of Commissioner.

(N.Y.) Under Great New York Charter, §748, and in view of Code of Ordinances, c. 24, art. 2, § 17, subd. 6, officers and men of the fire department are not exempt from speed ordinances, unless they are proceeding to a fire or responding for emergency work.—Dowler v. Johnson, 121 N. E. 487, 225 N. Y. 39.

The fire commissioner of a city may be responsible for the negligent driving of his automobile by a fireman assigned to that duty, where the commissioner was present and, though the driver was subject to his orders, permitted the speed to be maintained after reasonable opportunity for protest.—Id.

Street Improvements—Irregular Assessments.

(Okla.) Proceedings of a municipal corporation ordering street improvements and assessments are presumed to be regular, and the burden is upon one attacking the legality of an assessment to show irregularity in such proceeding.—Newman v. Warner-Quinlan Asphalt Co., 177 P. 375.

Use of Railroad Crossing—Public Easement.

(Ga.) Although for more than 20 years a crossing over its tracks is used by persons and vehicles, the public will not acquire an easement by prescription, unless the use has been adverse, exclusive, and under a claim of right and not by railroad's permission.—City of Atlanta v. Georgia R. & Banking Co., 98 S. E. 83.

Continuous Use of Street—Public Highway.

(Mass.) Continuous use of street by public, even with implied assent of abutters and their predecessor or predecessors in title, is evidence of the exercise of adverse rights by the public.—Sullivan v. City of Worcester, 121 N. E. 788.

Admissions of a city or town, by making repairs or using a highway for municipal improvements, as by laying water pipes, constructing a sewer, installing and maintaining an electric light, etc., are evidence of its existence as a public highway.—Id.

Compelling Track Removal When Franchise Expires.

(U.S.Sup.) A city may compel a street railway company to remove its tracks from streets, its franchises for which have expired.—Detroit United Ry. Co. v. City of Detroit, 39 S. Ct. 151.

Power of City to Encourage Factories.—Exemption from Taxation.

(Miss.) The Legislature can confer upon towns and cities by general laws the power to encourage the establishment of factories within their corporate limits.—Robertson v. Southern Paper Co., 80 So. 384.

A city had no power, under Laws 1912, c. 115, to pass an ordinance exempting a paper company from municipal taxation for 10 years, if it would allow the corporate limits to be extended so as to include its plant, where its factory had already been established, in view of Const. 1890, § 192, authorizing exemption from municipal taxation of industries to be established.—Id.

Vacation of Street.—Review of Ordinances by Court.—Wording.—Private Bridge on Public Street.

(Ill.) A city council will not be permitted to do indirectly what it cannot do directly, and the mere use of the words, "it is deemed advisable and beneficial," in an ordinance, will not prevent the courts from looking to the substance.—People v. Corn Products Refining Co., 121 N. E. 574.

Courts have no power to review ordinances of a city council which involve only the question of motives actuating the exercise of legislative discretion, except in cases where there is such an abuse of that discretion that it may be said to be no exercise of discretion at all.—Id.

A city council has no power to authorize the construction of a bridge over a public street solely for private use.—Id.

A city council cannot vacate a street to serve a purely private use, no matter how patriotic the motive or how lawful the council believes the vacation to be.—Id.

Although the motive of a city council in vacating a street cannot be inquired into, the courts can inquire into the purpose of the vacation and receive parol evidence to that end.—Id.

Necessity and Reasonableness of Ordinances.—Suppressing Indecency.—Personal Liberty.

(Mo.App.) Municipal corporations are prima facie the sole judges of the necessities of their ordinances, and the courts will not ordinarily review the reasonableness of such ordinances when passed in compliance with authority given by the state, but should declare an ordinance void if on inspection it appears to be unreasonable.—City of Lancaster v. Reed, 207 S. W. 868.

Notwithstanding R. S. 1909, §§ 9371, 9572, authorizing cities of fourth class to enact ordinances not repugnant to Constitution and laws and to suppress public indecencies an ordinance declaring the association of two or more persons of opposite sex upon streets, one of them being a person of ill repute, to be a misdemeanor was unreasonable and void, as infringing the rights of personal liberty.—Id.

Power to Remove Unsafe Buildings.

(Tex.Civ.App.) Where buildings of plaintiffs, landlord and tenant, were so dilapidated as to render them menace to public safety in their tendency to promote fires, and therefore were a public nuisance, city under ordinance could lawfully remove them, after due notice to and hearing of plaintiffs.—Defferari v. City of Galveston, 208 S. W. 188.

City ordinances, empowering mayor and other officials on due notice and hearing to remove buildings within fire limits of city which are in such condition of dilapidation as to be nuisance in tendency to promote fires, are valid.—Id.

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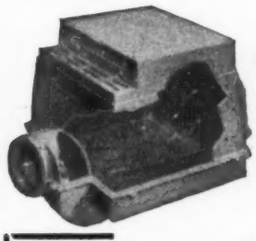

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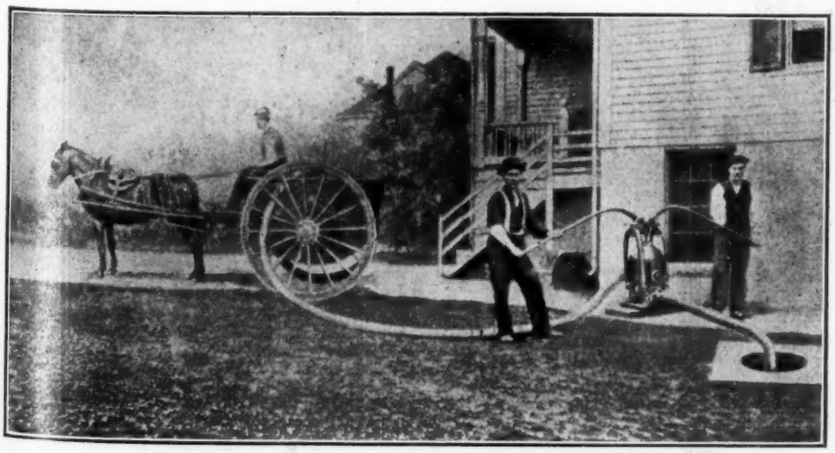

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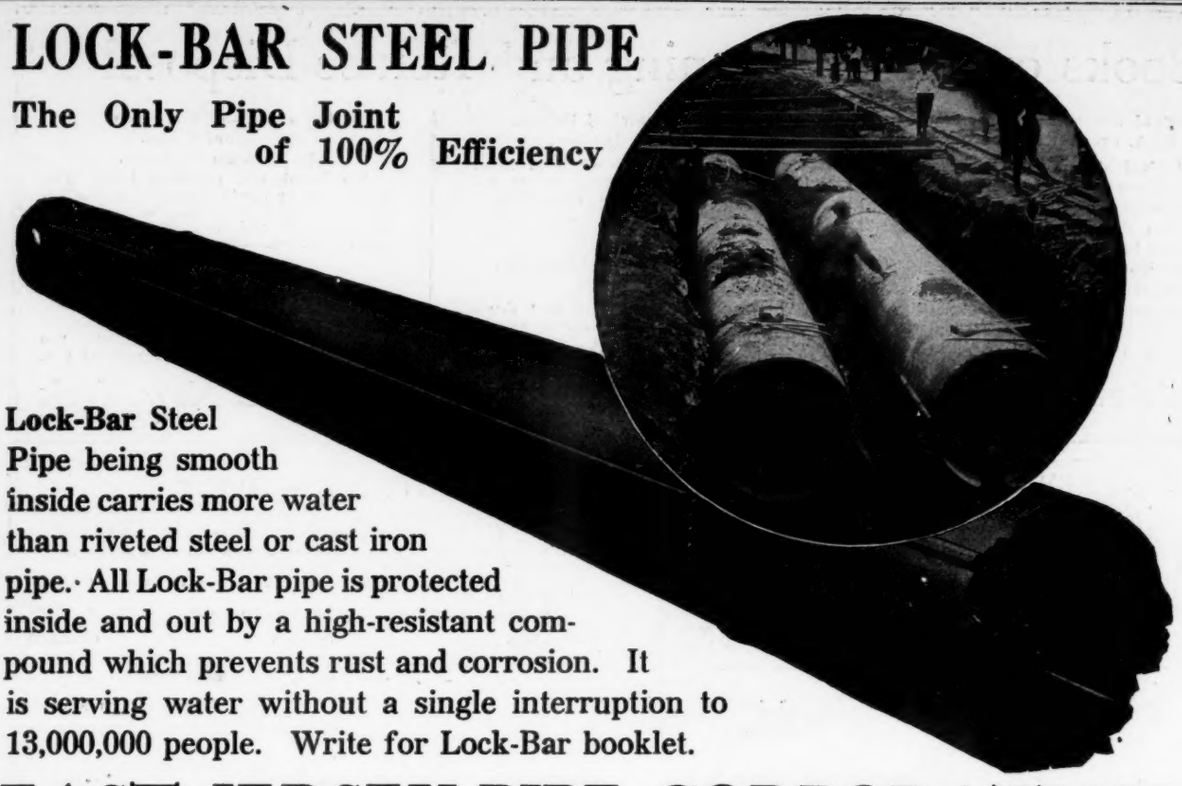

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